

## GROUND ROD CAP

Inventor: Paul B. Rivers

### BACKGROUND

[0001] The present application is related, generally and in various embodiments, to a ground rod cap. In the telecommunication and other industries, a ground rod is often used to establish a reference voltage and to protect various devices from damage due to lightning or static electricity. In many instances, the ground rod is driven into the earth until only a relatively small length of the ground rod remains above the earth. A ground rod clamp is then connected to the portion of the rod that remains above the earth. Finally, a ground wire connected to a device and/or system is connected to the ground rod clamp, thereby electrically connecting the ground rod to the device and/or system.

[0002] Such ground rods can be found at a significant number of residences. When an object falls onto a ground rod, the ground rod is very unforgiving and the object may be damaged. Also, exposure to the elements often causes the portion of the rod that remains above the earth to rust and turn brown, thereby making the rod more difficult to see.

### SUMMARY

[0003] In one general respect, this application discloses embodiments of a ground rod cap. According to various embodiments, the ground rod cap includes a crown portion and

a support portion connected to the crown portion. The crown portion is configured to receive a ground rod.

[0004] According to other embodiments, the ground rod cap includes a closed end and an open end opposite the closed end. The ground rod cap defines a void that encircles a cavity configured to receive a ground rod.

[0005] Other embodiments of the disclosed invention will be or become apparent to one skilled in the art upon review of the following drawings and detailed description. It is intended that all such additional embodiments be included within this description, be within the scope of the disclosed invention, and be protected by the accompanying claims.

#### **BRIEF DESCRIPTION OF THE DRAWINGS**

[0006] Figure 1 illustrates various embodiments of a ground rod cap;

[0007] Figure 2 is a top view of the ground rod cap of Figure 1 according to various embodiments;

[0008] Figure 3 is a bottom view of the ground rod cap of Figure 1 according to various embodiments; and

[0009] Figure 4 illustrates a ground rod covered by the ground rod cap of Figure 1.

#### **DETAILED DESCRIPTION**

[0010] Figures 1-3 illustrate various embodiments of a ground rod cap 10. The ground rod cap 10 is configured to cover an exposed portion of a ground rod 12 (shown in Figure 4) and includes a first end 14 and a second end 16 opposite the first end 14. The first end 14 is a closed

end and the second end 16 is an open end. The ground rod cap 10 defines a first axis 18 and includes a crown portion 20 and a support portion 22 connected to the crown portion 20.

**[0011]** The crown portion 20 of the ground rod cap 10 is configured to receive the ground rod 12 and includes a first surface 24 and a second surface 26. The first surface 24 is an outer surface and the second surface 26 is a bottom surface. The outer surface 24 of the crown portion 20 is curved and defines a dome. The bottom surface 26 of the crown portion 20 defines a cavity 28 that is configured to receive the ground rod 12. The cavity 28 is cylindrically-shaped, has a first diameter and a first maximum depth associated therewith, and defines a second axis 30. The second axis 30 is coincident with the first axis 18. The cavity 28 includes a first end 32 proximate the bottom surface 26 of the crown portion 20 and a second end 34 opposite the first end 32. The first end 32 of the cavity 28 is an open end and the second end 34 of the cavity 28 is a closed end. The second end 34 of the cavity 28 is positioned away from the outer surface 24 of the crown portion 20 by a distance greater than or equal to the first diameter associated with the cavity 28.

**[0012]** The bottom surface 26 of the crown portion 20 also defines a void 36 that encircles a portion of the cavity 28. The void 36 is bounded by a curved surface 38. The void 36 has a second maximum depth associated therewith, and the first maximum depth associated with the cavity 28 is greater than the second maximum depth.

**[0013]** The support portion 22 of the ground rod cover 10 includes a curved wall 40 having an inner surface 42 and an outer surface 44. The curved wall 40 of the support portion 22 is a continuously curving wall that has a uniform thickness. The support portion 22 is cylindrically-shaped and the inner surface 42 of the support portion 22 defines a hollow cylinder 46.

[0014] According to various embodiments, the crown portion 20 and the support portion 22 are fabricated from a rubber-like material such as PVC plastic. According to various embodiments, the crown portion 20 and the support portion 22 are integral.

[0015] Figure 4 illustrates a ground rod 12 covered by the ground rod cap 10 of Figure 1. The ground rod 12 includes a first end 48 and a second end 50 opposite the first end 48. As shown in Figure 4, the first end 48 of the ground rod has been driven into the earth 52 and the second end 50 of the ground rod 12 is above the earth 52. The second end 50 of the ground rod 12 is positioned within the cavity 28 defined by the bottom surface 26 of the crown portion 20 such that the second end 50 of the ground rod 12 is proximate the closed end 34 of the cavity 28. A portion of the ground rod 12 positioned within the hollow cylinder 46 defined by the inner surface 42 of the curved wall 40 of the support portion 22 has a ground rod clamp 54 connected thereto, and the ground rod clamp 52 is connected to a ground wire 56. The ground wire 56 is connected to a device and/or system (not shown) as is known in the art. The bottom of the support portion 22 is in contact with the earth 52. For certain installations, the bottom of the support portion 22 is trimmed as needed to ensure that the second end 50 of the ground rod 12 is positioned within the cavity 28 defined by the bottom surface 26 of the crown portion 20 such that the second end 50 of the ground rod 12 is proximate the closed end 34 of the cavity 28.

[0016] When an object falls on the ground rod cap 10, the curved outer surface 24 of the crown portion 20 serves to naturally deflect the object's contact point away from the ground rod 12. Similarly, when an object falls on the ground rod cap 10, the void 36 encourages deformation of the crown portion 20, thereby deflecting the object's contact point away from the ground rod 12. Thus, the crown portion 20 serves to redirect the energy associated with a

collision with the ground rod cap 10 away from the ground rod 12. In addition, when an object falls on the ground rod cap 10, the area of the crown portion 20 adjacent the closed end 34 of the cavity 28 serves to cushion the impact of any fall onto the ground rod cap 10.

[0017] While several embodiments of the disclosed invention have been described, it should be apparent, however, that various modifications, alterations and adaptations to those embodiments may occur to persons skilled in the art with the attainment of some or all of the advantages of the disclosed invention. For example, according to various embodiments, the bottom surface 26 of the crown portion 20 does not define a void 36 that encircles a portion of the cavity 28. It is therefore intended to cover all such modifications, alterations and adaptations without departing from the scope and spirit of the disclosed invention as defined by the appended claims.